DR. H. BEHLING: -- you've seen this -- these are (unintelligible) when you try to identify the name and -- and -- you know, I mean these are not easy to decipher.

MR. GRIFFON: Unless you're one of those (unintelligible) --

MR. TOMES: (Unintelligible) they changed -- they changed format (unintelligible) '73 changes and then you go back to the --

THE COURT REPORTER: Who is this?

UNIDENTIFIED: That was Tom.

THE COURT REPORTER: I didn't hear what he said.

MR. TOMES: At Savannah River they have several different formats for reporting the doses. You have annual summary, then you have details provided from the early days where you had every cycle detailed, then they just give you quarterly details and then finally they just give you a -- I think in 1973 they started a format where they just gave you cycles that were positive results and didn't even list the negative results. In 1989 they started giving you everything.

DR. H. BEHLING: That's where missed dose could

have come in because he's not even reporting anything that was not a positive report, so you don't know (unintelligible), you don't know the details. It's very, very difficult --

MR. GRIFFON: Right. That -- and I think that's one of -- probably one of the ones I saw in the other case that I reviewed 'cause there were just blank -- in the monitoring period there were spaces. Rather than zeroes or values, there were spaces.

MR. TOMES: A zero -- zero -- if there were zero (unintelligible) shallow dose and zero (unintelligible) zero deep dose it would not be (unintelligible).

THE COURT REPORTER: Okay, was that Mr. Tomes?

MR. TOMES: Sorry. Yeah, it was.

THE COURT REPORTER: I'm not hearing you.

MR. GRIFFON: Sorry about that, Ray.

THE COURT REPORTER: Okay. Could he repeat that, please?

MR. TOMES: Sure. If there was zero dose in both shallow and deep dose on -- on some of those forms there would just not -- be no entry.

THE COURT REPORTER: Thank you.

DR. H. BEHLING: Okay.

MR. GRIFFON: And -- and I agree, it's a general issue that I've brought up many times with the Board, and I -- and I think that -- I'll throw in one thing for you to further think about to complicate the matter is the people that have recorded doses, they're shortchanged because they set their dosimeter aside. They're impossible things probably to prove, but one way might be coworker data or area survey data. But we have more -- you know, a lot of anecdotal information on places that was done, and it's reinforced by the fact that you sort some of the early annual summary data and everything stops at 4.99 rem and nobody ever exceeded a -- or -- or 15 rem in the early years when -- or 12 rem, whatever their cutoff was. But --

MR. GIBSON: This is Mike Gibson. You could also -- you're going to run into cases where you may see a person's been in a radiation monitoring program, but there's still going to be doses that were unmonitored because they were sent into areas where it was unproperly (sic) characterized -- not monitored for those

radionuclides. One of those events happened at Mound. You can go back and you can look at the actinium event where the people weren't properly bioassay sampled, and two or three years after the fact they said well, what can you tell us? We can tell you that it shows up in the bioassay sample today you had over 100 rem.

MR. GRIFFON: Mark Griffon, this is -- I think so far the cases we've done in this first cycle they cover -- you cover that with the high five or the DOE-wide 28 radionuclide high (unintelligible), but we're going to run into that down the line maybe, yeah.

MS. MUNN: This is Wanda. Conversely, on the other end of the scale is the fact that a significant number of these workers had very liberal policies with respect to time off and time when they may have had significant periods of time when they simply were not on-site. That may or -- I don't know how well that information can be tracked for early years, but certainly in the later years -- the '60's, '70's, things of that sort -- I don't think that it was unheard of for a person to be gone

for several weeks at a time if there were, for example, a severe illness in the family or a parental problem in some other state, something of that sort. And I don't know how closely our -- our dose records indicate actual absence from the workplace for something other than -- than worker illness itself.

MR. HINNEFELD: That's true, that could also -- this is Stu Hinnefeld. That could also explain gaps in records for people who were well-monitored, as well.

MR. GRIFFON: Yeah, and they -- and they (unintelligible) -- as we know, there are work histories -- it's hard to recollect what you did in the 1946 (unintelligible) --

UNIDENTIFIED: (Unintelligible) last week.

MR. GRIFFON: -- (unintelligible) right.

DR. H. BEHLING: Okay, case #10.

MR. HINNEFELD: Ready for case #10?

DR. H. BEHLING: Yes.

MR. HINNEFELD: We're moving along.

PRESENTATION/DISCUSSION OF ISSUES FOR CASE #10

DR. H. BEHLING: Case #10 is another Savannah River Site claim. The period of employment extends from to so he was less

than years there. His job was -- job description identifies him as an . This individual has two cancers. The first one is a colon cancer, the second one a prostate cancer. And based on an assigned dose of 3.6 rem, most of which comes from a hypothetical internal exposure using the Savannah River Site high five approach, his POC was 11.3 percent. So with that I'll turn it over to Stu and talk about issue number one.

MR. HINNEFELD: Issue number one is a comment that the medical X-ray dose perhaps should be the dose from photofluorographic examination versus standard chest PA exam of -- because that was done for some period of time at Savannah River. And our research in -- at Savannah River about this, the photofluorography, indicates that it was pretty much done by 1970. And that while there was a photofluorographic examination used for routine screening at least for some portion of the work force up through -- up until -- up through 1959, that it didn't persist beyond that and by '60 and later they were using standard PA exam for chest X-rays. And so we feel -- since this

person's employment was after , we felt like the assignment was probably correct. Issues number two and three on this are the generic issues for Savannah River, the organically bound tritium and the high -- Savannah River high five, that intake, which I think we're going to talk about in the next case.

And then the fourth comment or the fourth issue are -- relates to items made during -- in this case it's actually the closeout interview. These are -- this was information provided during the closeout interview, which is a different interview than the claimant interview prior to the dose reconstruction. A closeout interview occurs after the dose reconstruction report has been written.

In this case the claimant was a survivor and insisted that her husband was monitored, and his job was one of probably someone who may have entered radiological areas from time to time and worn a badge for those entries. We were unable to find any of those type of badges. And in fact, the dose reconstruction that was prepared and has been reviewed was

really prepared before any of these comments were made. And so with respect to the dose reconstruction itself, I think it's relatively -- you know, not feasible to have addressed this in the dose reconstruction report. So depending upon the nature of what we're doing here, I mean -- the dose reconstruction report was prepared with the information available at the time, and so the existence of these comments in a closeout interview are sort of, you know, not part of the dose reconstruction preparation process, so I don't know how we want to go, whether we want to go into these -- you know, how we want to treat these.

DR. H. BEHLING: Just for clarification for you, Wanda, Stu's reference to a closeout involves a phone log and -- and therefore the dose reconstruction had been completed and in essence the phone log of conversations that took place between the interviewer and the survivor of this claimant centered around what she felt were discrepancies -- I suppose she must have reviewed the dose reconstruction report and -- and came to some conclusions about whether or not some of the issues that

she addressed were included in the dose reconstruction report, such as he was monitored and that -- that he had worked at other sites that may have also added exposure, et cetera. So Stu's comment is that the dose reconstructionist who wrote this one had no understanding of what was about to come because the phone log followed the dose reconstruction process --

MS. MUNN: Uh-huh.

DR. H. BEHLING: -- so there was no way for him to at least even address these issues as part of the dose reconstruction report.

MS. MUNN: I understand. Those kinds of discrepancies would be difficult.

DR. H. BEHLING: Yes.

MR. HINNEFELD: Right. Nothing else?

DR. H. BEHLING: I guess we're done with case #10.

MR. GRIFFON: Well, I -- is there any -- I guess you guys are still grappling with that as to what to do with that. Do you -- (unintelligible) that it changes the dose reconstruction but is there any follow-up with the --

MR. HINNEFELD: I don't -- I don't know about this case.

MR. GRIFFON: Yeah.

MR. HINNEFELD: I don't know about this case. I know that --

MR. GRIFFON: Those situations (unintelligible) --

MR. HINNEFELD: -- today --

MR. GRIFFON: Yeah.

MR. HINNEFELD: -- we'll spend -- when that is mentioned, if it's mentioned at closeout interview, we will try to obtain visitor exposure records from the sites (unintelligible). That frequently doesn't yield a lot. Sometimes it does.

MR. GRIFFON: Right. Right.

MR. HINNEFELD: There's another instance here that this particular Energy employee had a long career with and only one portion of that was at Savannah River. So she felt like he worked for all those years, how can you say only a and so there's a covered employment period issue which is not -- you know, (unintelligible) resolved. The Department of Labor develops the evidence for

the covered employment period and lets us know. So there are, you know, some things like -- like that that factor into essentially a sort of an inability on our part in this particular case to resolve all these issues. So -- but today, if that (unintelligible) happen today we hear about well, we put down who hired him on our form, but he also worked at these other sites, or he went on business trips to these sites and he did this kind of stuff there, we will pursue that now with the visited sites and if there is no report of that visit in his home -- his employment location of record. Sometimes some sites will provide a report of exposure from another site that the person, you know, made a business trip while they were working, they were monitored, got (unintelligible) report, it'll be in the record. That doesn't happen all that much.

PRESENTATION/DISCUSSION OF ISSUES FOR CASE #11

DR. H. BEHLING: Case #11. Case #11, just for Wanda and the recorder's benefit, involves another Savannah River Site case. The individual here was a -- . He worked there for approximately -- or even less

than a . He worked at various time intervals in but collectively they all represent less than about of employment at the Savannah River Site as ar . He has two types of cancers, a skin squamous cell carcinoma and a basal cell carcinoma. In fact he had two skin squamous cell carcinoma and a third skin basal cell carcinoma. The assigned dose for him was again maximized using the hypothetical intake -- internal intake and that corresponds to about 60 percent, 70 percent or so of the dose of 3.6 rem assigned to him. His only external exposure, according to the dose reconstruction report, comes from occupational medical exposure and on-site ambient exposure. There are no assigned dosimeter or missed doses since he was apparently not monitored.

So with that, I'll turn it over to --

MS. MUNN: And what was his job descrip--

DR. H. BEHLING: He was an

MS. MUNN: Oh, thank you. I remember your saying that now.

MR. HINNEFELD: Issue number one on the -- on this dose reconstruction is that the on-site

ambient dose that was assigned doesn't follow the guidance in the Technical Basis Document. And that appears to be correct. The doses in the dose reconstruction are higher than the guidance in the Technical Basis Document and so was I guess a -- a mistake in some part or of -- you know, Savannah River Technical Basis Document guidance on ambient exposures has evolved. There have been two -- like two or three versions of ambient exposures at Savannah River, so it could have been an older version that was (unintelligible).

And then there's a comment about a distribution that was supposed to -- the value should have been entered as a lognormal distribution and my recollection of most of the ambient doses -- and I -- and I -- this is kind of what we said but I'm having trouble keeping everything straight -- is that typically the environmental aspect of the TBD will provide the monitoring information and in most of our (unintelligible) data is lognormally distributed so it'd give you the mean and the standard geometric deviation for the environmental data. But very frequently we will also provide some

overestimating numbers, like the highest number at -- recorded at any location on-site, ambient location at the site for that year, adjusted to assume that that person was at that location for 50 hours a week for every week. And since we're making an overestimating assumption, we'll certainly choose those numbers and enter it as a -- as a constant value for ambient. So that's a relatively common practice, so we've got a little discussion going on today about the appropriateness of overestimating as a constant versus a more accurate estimate with distribution. So we could probably lump some evaluation of this into that, but I think in this case this is probably quite a significant overestimate of the actual numbers in the TBD. There's also a comment about conversion and wheth-- if the dose that's recorded is -- seems to be saying that there should be an additional adjustment in order to arrive at skin dose versus deep dose. And I think that might just probably be a pretty good comment. We think, though, the magnitude of the comment is probably relatively small compared to the overestimates that they described in the

previous, where we used -- ambient doses are quite a bit higher than what the TBD said, but --

DR. H. BEHLING: Can I just jump in -- Hans Behling. The issue here is what does ambient on-site dose really reflect. If it turns out that this is mostly ground deposition, probably not a significant issue when you talk about deep dose versus shallow dose. But if you're talking about, for instance, noble gases and you're downwind in the plume and -- or downwind from the discharge point, there would be a significant difference between the HP10* versus the 7 milligram shallow dose, so --

MR. HINNEFELD: Right.

DR. H. BEHLING: -- it was just only thrown in here that -- as a generic issue it only applies to skin cancer claims.

MR. HINNEFELD: Right.

DR. H. BEHLING: Certainly would not apply to any organ other than the skin tissue, but it was just a technical issue that I thought I'd raise because I know that on-site environmental dosimeters that are normally hung -- even though they may represent a four-element

Panasonic 802 that has the capacity to tell you what the shallow dose is, for -- for historical reasons they're usually not recorded. Neither is the 300 milligram eye* dose, so what you usually record only is the deep dose at 1,000 milligram --

MR. HINNEFELD: Right.

DR. H. BEHLING: -- and so in -- in select cases of cancers, the ambient dose for skin cancer would potentially be underestimated under those circumstances.

MR. HINNEFELD: Yeah, I think there are some other mitigating things here. There's -- well, there's -- the time period the person worked was in the , so presumably the -- you know, fission product emissions are low -- you know, beta emissions were somewhat less than say the early days (unintelligible) or something. So probably this person was assigned the annual ambient dose for every calendar year that he was there, when in fact he was only there for about a total of a in about an calendar year period, so there's a lot of mitigating aspects to the actual reconstruction.

DR. H. BEHLING: Again Hans Behling. We're only bringing up technical issues. In this case I (unintelligible) concur with Stuart that based on the fragmentation of his employment that covers several years, and for each fragmented year he's given a full exposure for ambient dose, we're more than adequately covering any of these gaps, but it's strictly a technical issue that I'm raising here.

MR. GRIFFON: Stu, I -- I was curious about this fragmented work period, too, and it may -- I mean this -- this case totals to probably. But it's interesting to me anyone who, under these kind of (unintelligible) worked for at a time over a course of . I just wonder if it was -- you know, hopefully it wasn't intermittent hot work. It doesn't seem like it would be. It seems like in the that kind of stuff wasn't occurring.

MR. HINNEFELD: Probably wasn't.

MR. GRIFFON: But you know, I just wonder if --

DR. H. BEHLING: He was not monitored, which --

MR. GRIFFON: Well, at times he was.

DR. H. BEHLING: Yeah, well, in the CATI